

REMARKS

Status of the Application

Claims 1-10 are all the claims that have been examined in the instant application. Claims 1-10 stand rejected under 35 U.S.C. § 112, first paragraph, because the specification, while being enabling for some parameters, does not reasonably provide enablement for all parameters within the scope claimed. The Examiner appears to make two separate rejections on this ground (See items 7 and 8 in the Office Action). Claims 1-10 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The Examiner has indicated that claims 1-10 would be allowable if the §112 rejections are properly addressed.

By this Amendment, Applicants are amending claim 1.

Claim Rejections - 35 USC § 112

A. Claims 1-10 are rejected under 35 U.S.C. § 112, first paragraph, because the specification, while being enabling for some parameters, does not reasonably provide enablement for all parameters within the scope claimed. (Item 7, p. 3-4 of the Office Action)

The Examiner alleges that the specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims. Specifically, the Examiner assets “regarding claim 1, the specification enables (absorption = 100 dB, Raman efficiency = 0.5 W⁻¹), but does not enable one skilled in the art to make a device that has an absorption of 10000 dB and still has a Raman

efficiency $\geq 0.5 \text{ W}^{-1}$.” The Examiner has rejected the remaining claims for analogous reasons regarding each of the claimed ranges.

Applicants hereby amend claim 1 to include a maximum absorption of 300 dB and a gain of 60 dB. See page 4, lines 24-32 of the Specification. Further support for the amendment is as follows.

It is known that, for 100dB of cumulated absorption of Erbium, a gain of about 20dB is obtained with the fiber. Consequently a gain of 20 to 60dB is obtained for absorption values between 100dB and 300dB.

As seen in the following exemplary situation, it is known in the art for the gain $G(\lambda)$ of an Erbium Doped Fiber Amplifier (EDFA) to be defined by the following formula :

$$G(\lambda) = [g^*(\lambda).INV - \alpha(\lambda).(1 - INV)]L$$

where :

$\alpha(\lambda)$ and $g^*(\lambda)$ are respectively the absorption and emission coefficient of the fiber (which depend on the wavelength(λ) in dB/m)

L is the length of the Erbium-doped fiber in m

INV is the inversion coefficient : a number between 0 and 1 which defined the average level of the excitation of the Erbium ions (0: none of the ions are excited; 1: all the ions are excited)

Exemplarily, Applicants are considering the gain at 1530nm. For this wavelength α ($\lambda_{1530\text{nm}}$) $\approx g^*(\lambda_{1530\text{nm}}) = \alpha_{1530\text{nm}}$. Moreover in the C-band (1529nm-1561nm) a known practical value for the inversion parameter is INV=0.6. Therefore for these conditions G can be written :

$$G=0.2\alpha_{1530\text{nm}}*L$$

Which means:

if the value of $\alpha_{1530\text{nm}}*L = 100\text{dB}$ $\rightarrow G=20\text{dB}$

if the value of $\alpha_{1530\text{nm}}*L = 300\text{dB}$ $\rightarrow G=60\text{dB}$

Thus, Applicants respectfully request withdrawal of the rejection.

B. Claims 1-10 are rejected under 35 U.S.C. § 112, first paragraph, because the specification, while being enabling for some parameters, does not reasonably provide enablement for all parameters within the scope claimed. (Item 8, p. 4-5 of the Office Action)

The Examiner alleges that the specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims.

As noted above, Applicants have amended claim 1 in order to cure the noted deficiencies. Thus, withdrawal of the rejection is hereby respectfully requested.

C. Claims 1-10 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Specifically, the Examiner alleges that claim 1 does not specify whether the doped ring or the undoped core has an absorption of greater than 100 dB.

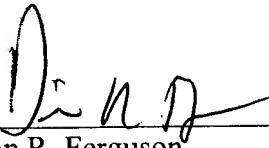
Applicants have amended claim 1 in order to overcome the rejection. Applicants respectfully request that the Examiner withdraw the rejection.

Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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